AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing Of Claims:

Please amend the claims as follows:

1.   (Currently Amended) A method comprising:

designing a target comprising a plurality of near-neutral patches surrounding a plurality of neutral gray patches in different lightness levels ranging from white to black;

defining a desired neutral aim in a device independent profile connection space (PCS);

receiving a plurality of measurements of the plurality of near-neutral patches for different lightness levels from the target printed by an imaging system using a first plurality of sets of color values of the imaging system's color space, derived based on a second plurality of sets of color values of the PCS and in accordance with a print table of a color profile of the imaging system mapping color value sets from the PCS to color value sets in the imaging system's color space, the second plurality of sets of color values defining the near-neutral patches of the target in the PCS; and

computing a third plurality of sets of color values for the imaging system to output a corresponding plurality of neutral gray outputs at the different lightness levels, by interpolation, based at least in part on the received measurements, wherein the interpolation comprises:

retrieving a fourth plurality of sets of color values in the imaging system's color space corresponding to plurality of nodes in the PCS defining an area in a lightness level containing a neutral node of the lightness level and associated with up to nine points;

computing the corresponding set of the third plurality of sets of color values based on the fourth plurality of sets of color values;

constructing eight triangles by first dividing the area into four quadrangles and subdividing the quadrangles into a total of 8 triangles;

searching exhaustively the eight triangles to determine a triangle containing the neutral node of the lightness level;

computing the third plurality of sets of color values by three point interpolation.

2.   (Currently Amended) The method of claim 1, wherein the method comprises taking the measurements in a manner that directly provides fourth color values of the printed near-neutral patches in the PCS, and the third plurality of sets of color values are computed based on the corresponding set of L*a*b* color space.

3.   (Cancelled)

4.   (Original) The method of claim 1, wherein the method comprises taking the measurements employing a selected one of a colorimeter and a spectrophotometer instead.

5.   (Original) The method of claim 1, wherein the method is practiced on the imaging system, and further comprises printing the near-neutral patches using the first sets of color values.

6.   (Original) The method of claim 1, wherein the method further comprises computing the first sets of color values based on the second sets of color values of the profile connection space (PCS) defining the near-neutral patches in the PCS, in accordance with the print table of the color profile of the imaging system.

7 – 10. (Cancelled)

11.   (Original) The method of claim 1, wherein the color profile of the imaging system is a RGB profile, and each color component is a selected one of a R, a G and a B color component.

12 – 15.   (Cancelled)

16.   (Original) The method of claim 1, wherein the method further comprises adjusting the print table of the color profile of the imaging system in view of the computed third plurality of sets of color values.

17.   (Cancelled)

18.   (Currently Amended) An apparatus comprising:

storage medium having stored therein a plurality of programming instructions designed to enable the apparatus to:

design a target comprising a plurality of near-neutral patches surrounding a plurality of neutral gray patches in different lightness levels ranging from white to black;

define a desired neutral aim in a device independent profile connection space (PCS);

receive a plurality of measurements of the plurality of near-neutral patches for different lightness levels from the target printed by an imaging system using a first plurality of sets of color values of the imaging system's color space, derived based on a second plurality of sets of color values of the PCS, and in accordance with a print table of a color profile of the imaging system mapping color value sets from the PCS to color value sets in the imaging system's color space, the second plurality of sets of color values defining the near-neutral patches of the target in the PCS, and

compute a third plurality of sets of color values for the imaging system to output a corresponding plurality of neutral gray outputs at different lightness levels, by interpolation, based at least in part on the received measurements, wherein the interpolation comprises:

retrieve a fourth plurality of sets of color values in the imaging system's color space corresponding to plurality of nodes in the PCS defining an area in a lightness

level containing a neutral node of the lightness level and associated with up to nine points;

        perform systematic analysis on the area in the lightness level of the PCS to determine the area of the measured near-neutral patch in the lightness level containing the neutral node of the lightness level, the area analysis comprising:

                constructing eight triangles by first dividing the area into four quadrangles and subdividing the quadrangles into a total of 8 triangles,

                searching exhaustively the eight triangles to determine a triangle containing the neutral node of the lightness level,

                computing the third plurality of sets of color values by three point interpolation, and

                computing the third plurality of sets of color values based on the corresponding set of L*a*b* color space.

19 – 20.   (Cancelled)

21.   (Original) The apparatus of claim 18, wherein the apparatus comprises the imaging system, and the programming instructions are further designed to enable the apparatus to print the near-neutral patches using the first sets of color values.

22.   (Previously Presented) The apparatus of claim 18, wherein the programming instructions are further designed to enable the apparatus to compute the first sets of color values based on the second sets of color values of the profile connection space (PCS).

23 - 24.   (Cancelled)

25.   (Original) The apparatus of claim 24, wherein the color profile of the imaging

system is a RGB profile, and each color component is a selected one of a R, a G and a B

color component.

26.   (Original) The apparatus of claim 24, wherein the programming instructions are

further designed to enable the apparatus to adjust the corresponding set of the third

plurality of sets of color values in view of a weighted average of measured lightness of

the nodes defining the area containing the neutral node at the lightness level.

27.   (Original) The apparatus of claim 26, wherein the programming instructions are

further designed to enable the apparatus to weigh the measured lightness of each node in

accordance with an amount of contribution to the area containing the neutral node at the

lightness level by an area defined by the neutral node, the node and at least one other

node.

28.   (Original) The apparatus of claim 26, wherein the programming instructions are

further designed to enable the apparatus to perform said adjustment by linearly

interpolating the corresponding set of the third plurality of sets of color values to a darker

neutral gray if the weighted average of the measured lightness of the nodes defining the

area containing the neutral node at the lightness level is greater than the lightness level,

and linearly interpolating the corresponding set of the third plurality of sets of color

values to a lighter neutral gray if the weighted average of the measured lightness of the nodes defining the area containing the neutral node at the lightness level is less than the lightness level.

29.   (Original) The apparatus of claim 26, wherein the programming instructions are further designed to enable the apparatus to repeat for at least one other lightness level, said performance of systematic area analyses, said computing of a corresponding set of the third plurality of sets of color values, and said adjusting of the corresponding set.

30.   (Original) The apparatus of claim 18, wherein the programming instructions are further designed to enable the apparatus to adjust the print table of the color profile of the imaging system in view of the computed third plurality of sets of color values.

31.   (Previously Presented) The apparatus of claim 18, wherein the PCS is CIE's L*a*b color space.

32.   (Currently Amended) An article of manufacture comprising:

    a storage medium; and

    a plurality of instructions stored in the storage medium, the instructions designed to enable an apparatus to design a target comprising a plurality of near-neutral patches surrounding a plurality of neutral gray patches in different lightness levels ranging from white to black;

define a desired neutral aim in a device independent profile connection space (PCS);

receive a plurality of measurements of the plurality of near-neutral patches for different lightness levels from the target printed by an imaging system using a first plurality of sets of color values of the imaging system's color space, derived based on a second plurality of sets of color values of the PCS in accordance with a print table of a color profile of the imaging system mapping color value sets from the PCS to color value sets in the imaging system's color space, the second plurality of sets of color values defining the near-neutral patches of the target in the PCS; and

compute a third plurality of sets of color values for the imaging system to output a corresponding plurality of neutral gray outputs at different lightness levels, by interpolation, based at least in part on the received measurements, wherein the interpolation comprises:

retrieving a fourth plurality of sets of color values in the imaging system's color space corresponding to plurality of nodes in the PCS defining an area in a lightness level containing a neutral node of the lightness level and associated with up to nine points;

performing a systematic analysis on the area in the lightness level of the PCS to determine the area of the measured near-neutral patch in the lightness level containing the neutral node of the lightness level, the area analysis comprising:

constructing eight triangles by first dividing the area into four quadrangles and subdividing the quadrangles into a total of 8 triangles,

searching exhaustively the eight triangles to determine a triangle containing the neutral node of the lightness level, and

computing the third plurality of sets of color values by three point interpolation.

33.   (Original) The article of claim 32, wherein the programming instructions are designed to enable the apparatus to take the measurements.

34.   (Original) The article of claim 32, wherein the programming instructions are designed to enable the apparatus to print the near-neutral patches using the first plurality of sets of color values.

35.   (Previously Presented) The article of claim 32, wherein the programming instructions are further designed to enable the apparatus to compute the first sets of color values based on the second sets of color values of the profile connection space (PCS).

36.   (Cancelled)

37.   (Original) The article of claim 32, wherein the programming instructions are further designed to enable the apparatus to adjust the print table of the color profile of the imaging system in view of the computed third plurality of sets of color values.